



PERMANENT DOCUMENT

**ENEC 303
Annex AV**

**Annex AV
to Routine Test Requirements for manufacturers
(as per Article 9 of the Agreement)**

**Low-voltage switchgear and controlgear - PCB terminal
blocks for copper conductors covered by
EN 60947-1 and EN 60947-7-4**

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Annex AV to PD ENEC 303

Low-voltage switchgear and controlgear - PCB terminal blocks for copper conductors covered by covered by EN 60947-1 and EN 60947-7-4

1 ROUTINE TESTS (100%)

PCB terminal blocks for copper conductors (EN 60947-7-4)

1.1 Visual examination

Visual check of content of marking as part of a sampling plan on all production unless a statistical quality control system is applied, which shows that a 100 % check of marking is not necessary. At least the manufacturer's name or trade mark has to be visible on the product.

2 PERIODIC TESTS

PCB terminal blocks for copper conductors (EN 60947-7-4)

These tests have to be performed by the manufacturer, at least 4 times per year, on three samples from each series/family (same construction) when in production.

3.1 Marking

A PCB terminal block shall be marked in a durable and legible manner with the following:

- a) The name of the manufacturer or a trade mark by which the manufacturer can be readily identified;
- b) a type reference permitting its identification in order to obtain relevant information from the manufacturer or his catalogue.

Very small PCB terminal blocks with a surface which cannot be marked shall be marked only according to a). In those cases, all specified information shall be marked on the smallest packing unit.

3.2 Dielectric strength test

The power-frequency withstand verification of solid insulation shall be made in accordance with the test voltages given in Table 1. For this test, the PCB terminal blocks are connected with the most unfavorable conductor (without a printed circuit board). The duration of the test is 1 min. The test voltage shall be applied between each of the poles which can assume different potentials in the application.

A voltage dip of the test voltage or a disruptive discharge or flashover is not allowed.

Table 1
Dielectric test voltages corresponding to the rated insulation voltage

Rated insulation voltage U_i	A.C. test voltage (r.m.s.) ^a	
	Overvoltage category III	Overvoltage category II
V	kV	kV
$U_i \leq 63$	0,5	0,4
$63 < U_i \leq 100$	0,8	0,5
$100 < U_i \leq 160$	1,4	0,8
$160 < U_i \leq 320$	2,2	1,4
$320 < U_i \leq 500$	3,1	2,2
$500 < U_i \leq 1000$	4,2	3,1

^a R.M.S. test voltages are based on 6.1.3.4 of IEC 60664-1:2007 and are higher than those of IEC 60947-1 :2007, Table 12A in order to be in line with requirements of end-product standards.

3.3 Connection of conductors

The test is carried out on screw-type clamping units with copper conductors having the appropriate cross-sectional area according to the Standard.

Clamping units and connecting methods	Reference standards
Screw-type clamping unit	EN 60999-1, Section 7 or EN 60999-2, Section 7
Screwless-type clamping unit	EN 60999-1, Section 7 or EN 60999-2, Section 7
